# HVTECK CU 1/C 175TRXLPE CB PVC AIA PVC 15kV 100% CSA

Single Conductor, 175 Mils Tree Retardant Cross Linked Polyethylene, 100% Insulation Level, Concentric Bond, Polyvinyl Chloride (PVC) Inner Jacket, Aluminum Interlocked Armour (AIA), Polyvinyl Chloride (PVC) Jacket

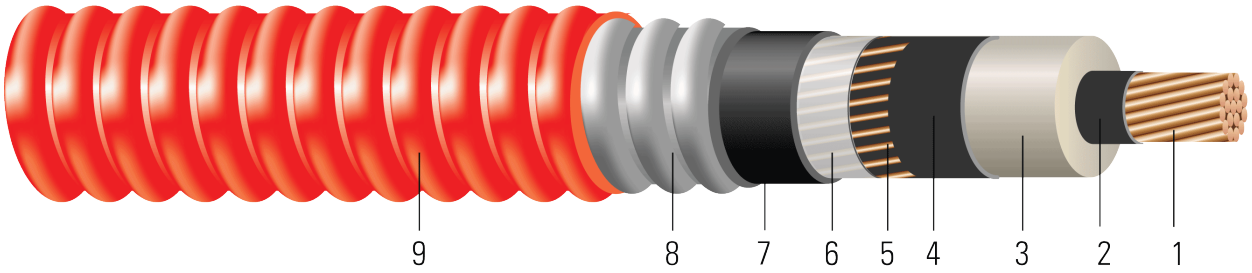



Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
3. **Insulation:** 175 Mils Tree Retardant Cross Linked Polyethylene 100% insulation level
4. **Insulation Shield:** Strippable semi-conducting cross-linked copolymer
5. **Concentric Shield:** Concentrically applied copper bond / shield wires. Complies with greater than the minimum requirement as per Table 44, CSA Standard C68.10 and Table 16A, Canadian Electrical Code Part 1
6. **Neutral Separator:** Mylar tape
7. **Inner Jacket:** PVC inner jacket
8. **Armour:** Aluminum Interlocked Armour (AIA)
9. **Overall Jacket:** Red Polyvinyl Chloride (PVC) Jacket

## APPLICATIONS AND FEATURES:

Southwire's 15kV HVTECK is a CSA armoured cable for industrial and commercial medium voltage applications. Rated FT4, -40°C, Hazardous Locations (HL). These cables are capable of operating continuously at the conductor temperature not in excess of 105°C for normal operation, 140°C for emergency overload, and 250°C for short circuit conditions. Rated for 1000 lbs /FT maximum sidewall pressure. These cables feature sunlight and moisture resistance, exceptional corona resistance, resistance to most chemical soils and acids and are flame retardant.

## SPECIFICATIONS:

- ASTM B3 Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper Conductors
- CSA C22.2 No. 174 Cables in Hazardous Locations
- CSA C22.2 No. 2556 & No. 0.3 Wire and Cable Test Methods
- CSA C68.10 Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 KV
- CSA C68.3 Shielded & Concentric Neutral Power Cable - 5 to 46 kV
- CSA LTGG [-40°C] - as per C68.10 - for Cold Bend and Impact rating
- CSA HL - for Hazardous Locations rating
- CSA SUN RES - for Sunlight Resistant rating
- ICEA S-93-639 (NEMA WC 74) 5-46 KV Shielded Power Cable
- ICEA T-29-520 Flame Test (210,000 BTU/Hr)
- IEEE 383 Flame Test (70,000 btu)



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- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test (1/0 and Larger)
- FT1 Flame Test (1,706 BTU/Hr nominal - Vertical Wire Flame Test)
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV (Qualification Test Requirements)

## SAMPLE PRINT LEGEND:

(CSA) SOUTHWIRE (NESC) #P# 1/C [#AWG or #kcmil] CU 175 TRXLPE AIA 15kV 100% INS LEVEL CB [No. x SIZE] AWG SUN RES 105°C FT4 HL (-40°C) LTGG RoHS YEAR [SEQUENTIAL METER MARKS]

### Table 1 – Weights and Measurements

| Cond. Size | Strand | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Concentric Neutral | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | No. | inch | inch | mil | inch | No. x AWG | mil | inch | mil | inch | lb/ 1000ft | lb/1000ft |
| 2 | 7 | 0.282 | 0.670 | 175 | 0.730 | 7x14 | 80 | 1.350 | 50 | 1.450 | 299 | 938 |
| 1 | 19 | 0.322 | 0.710 | 175 | 0.770 | 11x14 | 80 | 1.390 | 50 | 1.490 | 407 | 1077 |
| 1/0 | 19 | 0.361 | 0.749 | 175 | 0.809 | 11x14 | 80 | 1.429 | 50 | 1.529 | 474 | 1175 |
| 2/0 | 19 | 0.405 | 0.793 | 175 | 0.853 | 11x14 | 80 | 1.473 | 50 | 1.573 | 559 | 1295 |
| 3/0 | 19 | 0.456 | 0.844 | 175 | 0.904 | 13x14 | 80 | 1.524 | 60 | 1.644 | 694 | 1502 |
| 4/0 | 19 | 0.512 | 0.900 | 175 | 0.960 | 13x14 | 80 | 1.580 | 60 | 1.700 | 829 | 1683 |
| 250 | 37 | 0.558 | 0.954 | 175 | 1.014 | 17x14 | 80 | 1.658 | 60 | 1.778 | 1001 | 1935 |
| 350 | 37 | 0.661 | 1.057 | 175 | 1.117 | 21x14 | 80 | 1.795 | 60 | 1.915 | 1365 | 2400 |
| 500 | 37 | 0.789 | 1.185 | 175 | 1.245 | 26x14 | 80 | 1.923 | 60 | 2.043 | 1896 | 3132 |
| 750 | 61 | 0.968 | 1.374 | 175 | 1.434 | 21x12 | 110 | 2.172 | 60 | 2.292 | 2753 | 4290 |
| 1000 | 61 | 1.117 | 1.523 | 175 | 1.583 | 21x12 | 110 | 2.321 | 75 | 2.471 | 3525 | 5277 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
1 Comply with ICEA S-93-639 Appendix C for jacket thickness determination


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## Table 2 – Electrical and Engineering Data

| Cond. Size | Min Bending Radius | Max Pull Tension | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Zero Sequence Impedance | Positive Sequence Impedance | Phase Short Circuit Current @ 6 Cycles | Allowable Ampacity In Air 90°C | Allowable Ampacity Directly Buried 90°C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | inch | lb | Ω/1000ft | Ω/1000ft | MΩ*1000ft | Ω/1000ft | Ω/1000ft | Ω/1000ft | Amp | Amp | Amp |
| 2 | 17.4 | 530 | 0.162 | 0.204 | 0.054 | 0.059 | 0.561 + j0.456 | 0.205 + j0.060 | 5458 | 215 | 221 |
| 1 | 17.9 | 669 | 0.128 | 0.162 | 0.049 | 0.057 | 0.520 + j0.436 | 0.163 + j0.057 | 8577 | 245 | 247 |
| 1/0 | 18.3 | 844 | 0.102 | 0.128 | 0.046 | 0.055 | 0.487 + j0.418 | 0.129 + j0.055 | 8577 | 278 | 275 |
| 2/0 | 18.9 | 1064 | 0.081 | 0.102 | 0.042 | 0.053 | 0.461 + j0.399 | 0.103 + j0.053 | 8577 | 317 | 306 |
| 3/0 | 19.7 | 1342 | 0.064 | 0.081 | 0.039 | 0.051 | 0.438 + j0.378 | 0.082 + j0.051 | 10137 | 357 | 335 |
| 4/0 | 20.4 | 1692 | 0.051 | 0.065 | 0.035 | 0.049 | 0.420 + j0.357 | 0.066 + j0.049 | 10137 | 404 | 369 |
| 250 | 21.3 | 2000 | 0.043 | 0.056 | 0.033 | 0.048 | 0.408 + j0.338 | 0.057 + j0.048 | 13256 | 456 | 412 |
| 350 | 23.0 | 2800 | 0.031 | 0.041 | 0.029 | 0.046 | 0.386 + j0.306 | 0.042 + j0.046 | 16376 | 537 | 456 |
| 500 | 24.5 | 4000 | 0.022 | 0.030 | 0.025 | 0.044 | 0.365 + j0.271 | 0.031 + j0.044 | 20275 | 616 | 497 |
| 750 | 27.5 | 6000 | 0.014 | 0.023 | 0.021 | 0.042 | 0.341 + j0.229 | 0.024 + j0.041 | 26018 | 706 | 551 |
| 1000 | 29.7 | 8000 | 0.011 | 0.019 | 0.019 | 0.040 | 0.323 + j0.202 | 0.020 + j0.040 | 26018 | 813 | 596 |

* Inductive impedance is based on non-ferrous conduit with one diameter spacing.

## Table 3 – Weights and Measurements (Metric)

| Cond. Size | Strand | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Concentric Neutral | Inner Jacket Thickness | Dia. Over Armour | Overall Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | No. | mm | mm | mm | mm | No. x AWG | mm | mm | mm | mm | kg/km | kg/km |
| 2 | 7 | 7.16 | 17.02 | 4.44 | 18.54 | 7x14 | 2.03 | 34.29 | 1.27 | 36.83 | 445 | 1396 |
| 1 | 19 | 8.18 | 18.03 | 4.44 | 19.56 | 11x14 | 2.03 | 35.31 | 1.27 | 37.85 | 606 | 1603 |
| 1/0 | 19 | 9.17 | 19.02 | 4.44 | 20.55 | 11x14 | 2.03 | 36.30 | 1.27 | 38.84 | 705 | 1749 |
| 2/0 | 19 | 10.29 | 20.14 | 4.44 | 21.67 | 11x14 | 2.03 | 37.41 | 1.27 | 39.95 | 832 | 1927 |
| 3/0 | 19 | 11.58 | 21.44 | 4.44 | 22.96 | 13x14 | 2.03 | 38.71 | 1.52 | 41.76 | 1033 | 2235 |
| 4/0 | 19 | 13.00 | 22.86 | 4.44 | 24.38 | 13x14 | 2.03 | 40.13 | 1.52 | 43.18 | 1234 | 2505 |
| 250 | 37 | 14.17 | 24.23 | 4.44 | 25.76 | 17x14 | 2.03 | 42.11 | 1.52 | 45.16 | 1490 | 2880 |
| 350 | 37 | 16.79 | 26.85 | 4.44 | 28.37 | 21x14 | 2.03 | 45.59 | 1.52 | 48.64 | 2031 | 3572 |
| 500 | 37 | 20.04 | 30.10 | 4.44 | 31.62 | 26x14 | 2.03 | 48.84 | 1.52 | 51.89 | 2822 | 4661 |
| 750 | 61 | 24.59 | 34.90 | 4.44 | 36.42 | 21x12 | 2.79 | 55.17 | 1.52 | 58.22 | 4097 | 6384 |
| 1000 | 61 | 28.37 | 38.68 | 4.44 | 40.21 | 21x12 | 2.79 | 58.95 | 1.91 | 62.76 | 5246 | 7853 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item


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1 Comply with ICEA S-93-639 Appendix C for jacket thickness determination

## Table 4 – Electrical and Engineering Data (Metric)

| Cond. Size | Min Bending Radius | Max Pull Tension | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Zero Sequence Impedance | Positive Sequence Impedance | Phase Short Circuit Current @ 6 Cycles | Allowable Ampacity In Air 90°C | Allowable Ampacity Directly Buried 90°C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AWG/ Kcmil | mm | newton | Ω/km | Ω/km | MΩ*km | Ω/km | Ω/1000ft | Ω/1000ft | Amp | Amp | Amp |
| 2 | 441.96 | 2359 | 0.5315 | 0.67 | 0.0165 | 0.1936 | 0.561 + j0.456 | 0.205 + j0.060 | 5458 | 215 | 221 |
| 1 | 454.66 | 2977 | 0.4199 | 0.53 | 0.0149 | 0.1870 | 0.520 + j0.436 | 0.163 + j0.057 | 8577 | 245 | 247 |
| 1/0 | 464.82 | 3756 | 0.3346 | 0.42 | 0.0140 | 0.1804 | 0.487 + j0.418 | 0.129 + j0.055 | 8577 | 278 | 275 |
| 2/0 | 480.06 | 4735 | 0.2657 | 0.33 | 0.0128 | 0.1739 | 0.461 + j0.399 | 0.103 + j0.053 | 8577 | 317 | 306 |
| 3/0 | 500.38 | 5972 | 0.2100 | 0.27 | 0.0119 | 0.1673 | 0.438 + j0.378 | 0.082 + j0.051 | 10137 | 357 | 335 |
| 4/0 | 518.16 | 7529 | 0.1673 | 0.21 | 0.0107 | 0.1608 | 0.420 + j0.357 | 0.066 + j0.049 | 10137 | 404 | 369 |
| 250 | 541.02 | 8900 | 0.1411 | 0.18 | 0.0101 | 0.1575 | 0.408 + j0.338 | 0.057 + j0.048 | 13256 | 456 | 412 |
| 350 | 584.20 | 12460 | 0.1017 | 0.13 | 0.0088 | 0.1509 | 0.386 + j0.306 | 0.042 + j0.046 | 16376 | 537 | 456 |
| 500 | 622.30 | 17800 | 0.0722 | 0.10 | 0.0076 | 0.1444 | 0.365 + j0.271 | 0.031 + j0.044 | 20275 | 616 | 497 |
| 750 | 698.50 | 26700 | 0.0459 | 0.08 | 0.0064 | 0.1378 | 0.341 + j0.229 | 0.024 + j0.041 | 26018 | 706 | 551 |
| 1000 | 754.38 | 35600 | 0.0361 | 0.06 | 0.0058 | 0.1312 | 0.323 + j0.202 | 0.020 + j0.040 | 26018 | 813 | 596 |

* Inductive impedance is based on non-ferrous conduit with one diameter spacing.